

Supporting Information

Supramolecular Self-assembly of Atomically Precise Silver Nanoclusters with Chiral Peptide for Temperature Sensing and Detection of Arginine

Wenjuan Wang, Zhi Wang, Di Sun, Shulin Li, Quanhua Deng, Xia Xin*

National Engineering Research Center for Colloidal Materials, Key Laboratory of Colloid and Interface Chemistry (Ministry of Education), School of Chemistry and Chemical Engineering, Shandong University Jinan, 250100, China

* Author to whom correspondence should be addressed, E-mail: xinx@sdu.edu.cn

Phone: +86-531-88363597.

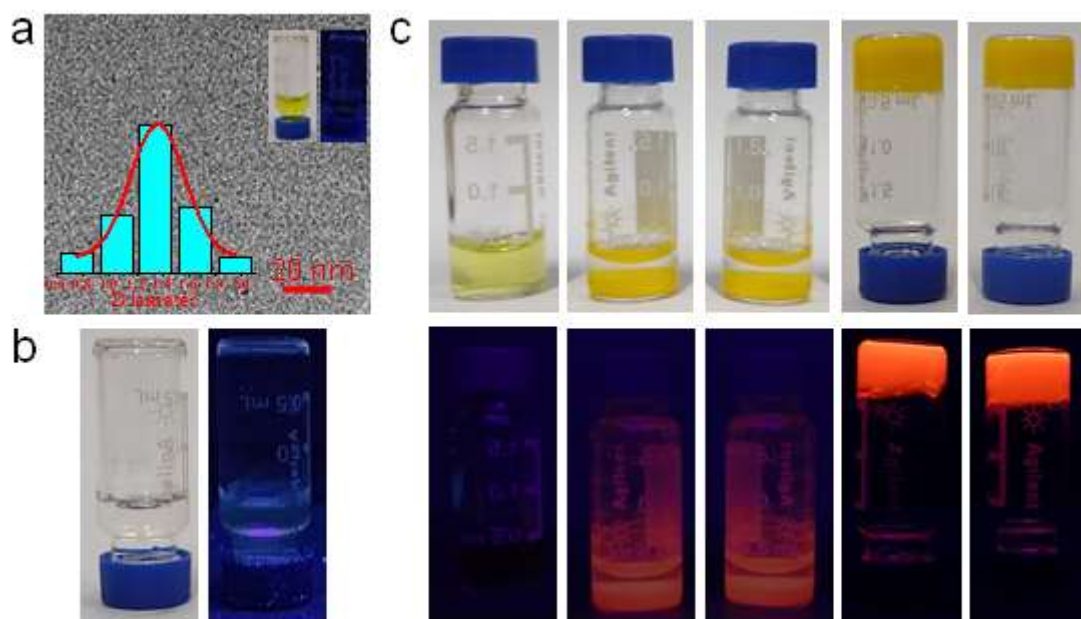


Figure S1. Co-assembled primitive photos and co-assembled phase behavior photos. (a) HR-TEM image of 5 mM Ag₉-NCs in aqueous solution, inset: the results of particle size distribution of Ag₉-NCs and photographs taken under daylight (left) and 365 nm UV light (right); (b) DD-5 photographs taken under daylight (left) and 365 nm UV light (right); (c) Phase behavior and photographs taken under daylight (up) and 365 nm UV light (down) of Ag₉-NCs at different DD-5 concentrations. (From left to right: 39 mM, 42 mM, 43 mM, 60 mM, 70 mM).

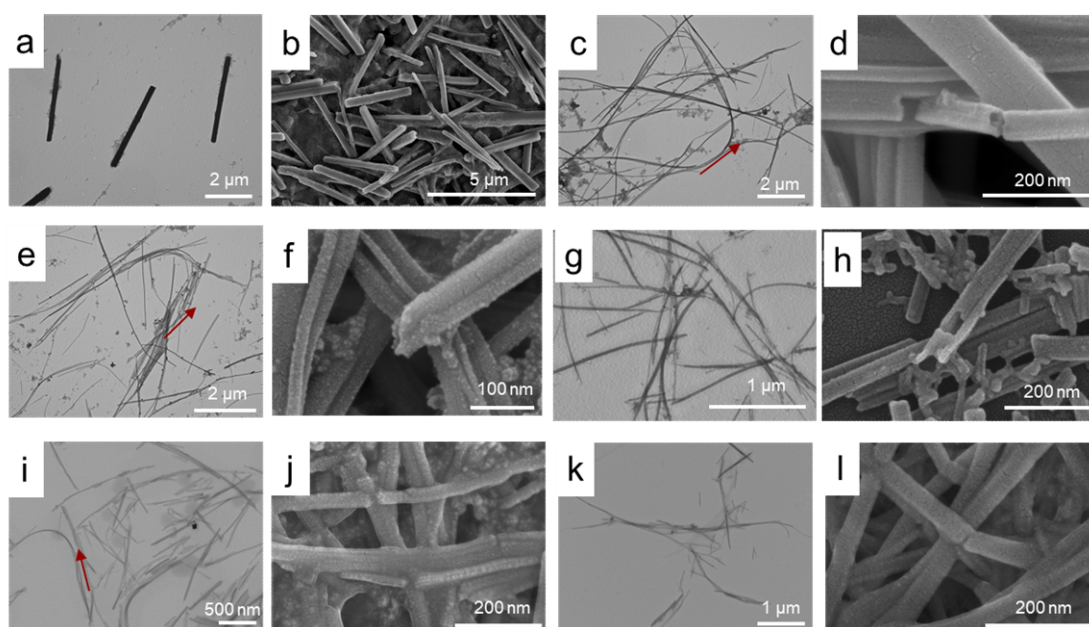


Figure S2. TEM and SEM images at different concentrations of DD-5. (a, b) 5 mM Ag₉-NCs/40 mM DD-5; (c, d) 5 mM Ag₉-NCs/50 mM DD-5; (e, f) 5 mM Ag₉-NCs/60 mM DD-5; (g, h) 5 mM Ag₉-NCs/70 mM DD-5; (i, j) 5 mM Ag₉-NCs/80 mM DD-5; (k, l) 5 mM Ag₉-NCs/90 mM DD-5.

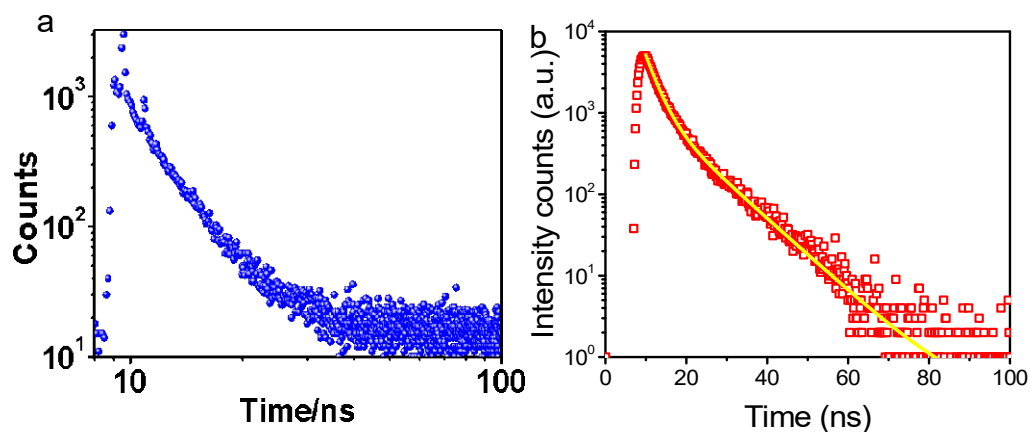


Figure S3. PL decay curve of lyophilized $\text{Ag}_9\text{-NCs}$ solution and $\text{Ag}_9\text{-NCs/DD-5}$ hydrogel. (a) lyophilized $\text{Ag}_9\text{-NCs}$ solution; (b) $\text{Ag}_9\text{-NCs/DD-5}$ hydrogel.

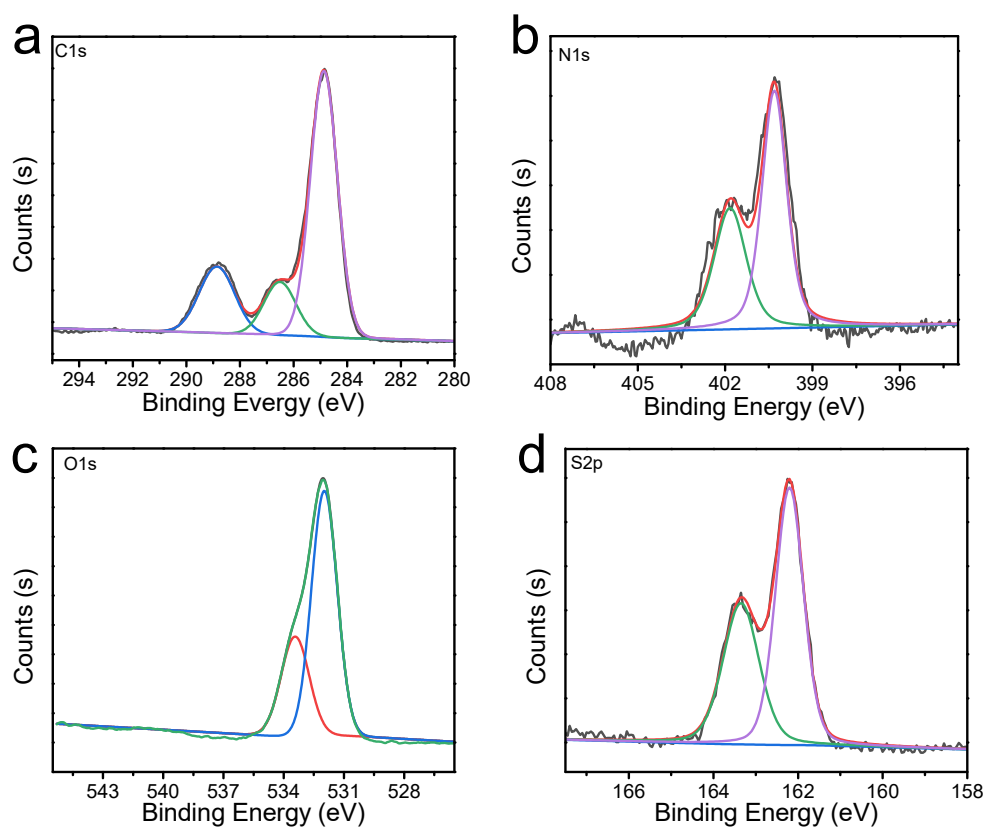


Figure S4. High-resolution XPS spectra of the $\text{Ag}_9\text{-NCs/DD-5}$ xerogel. (a) C_{1s} ; (b) N_{1s} ; (c) O_{1s} and (d) S_{2p} .

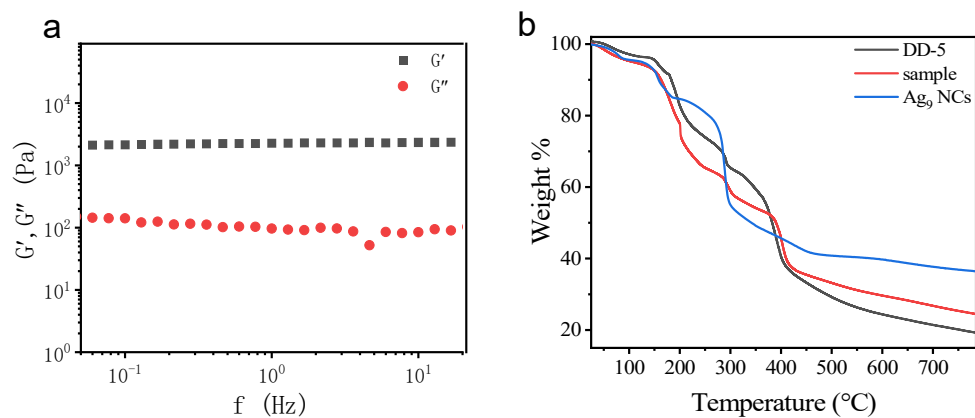


Figure S5. Hydrogel rheology and xerogel TGA. **(a)** frequency tests at $\tau = 10$ Pa for the Ag₉-NCs/DD-5 hydrogel; **(b)** TGA of a lyophilized Ag₉-NCs solution, DD-5 and Ag₉-NCs/DD-5 xerogel.

Table S1. Lifetime of the powder of lyophilized Ag₉-NCs solution.

Sample/Lifetime	τ_2 / ns	τ_2 / ns	τ_{ave} / ns
Ag ₉ -NCs	0.032 (13.1%)	1.973 (50.7%)	3.277

Table S2. Lifetime of Ag₉-NCs/DD-5 hydrogel.

Sample/Lifetime	τ_2 / ns	τ_2 / ns	τ_{ave} / ns
hydrogel	2.7584 (51.89%)	9.7149 (48.11%)	6.105